

REMARKS/ARGUMENTS

This paper is presented in response to an Office Action mailed January 25, 2005. Claims 8-13 are pending in the application with Claims 1-7 being withdrawn. Claim 8 has been amended inserting paragraph enumeration in an effort to facilitate identification of claim language that differs from the prior art and to correct improper antecedent basis for the term, autoclave. New Claim 13 has been added with support for the newly added material, i.e., a monolith catalytic reactor comprised of a monolith substrate and catalytic metal, being found in original Claim 5. The amendments to the Claims are fully supported by the Specification and do not present new matter.

Examiner' Rejection Based On Ohta US 6,086,832

At page 3 of the Office Action, The Examiner has rejected Claims 8-12 under 35 U.S.C. §103(a) as unpatentable over Ohta US 6,086,832. Ohta was cited as teaching gas phase hydrogenation having the elements of Applicant's claimed invention. The difference between Applicant's claimed process and Ohta is set forth at page 5 of the Office Action wherein the Examiner stated that Ohta did not teach hydrogenation of nitroaromatic compounds but concluded prima facie obviousness alledging that one of ordinary skill in the art would have modified the disclosure of Ohta to include hydrogenation of the claimed compounds. The Examiner further alleges that Ohta teaches the claimed process with a reasonable expectation of success.

Applicant's Response

First, as a matter of record, Claims 8-9 are not limited to the hydrogenation of a nitroaromatic compound but related to gas/liquid phase reactions. Claims 10-13 relate to the hydrogenation of nitroaromatic compounds. However, the feedstock employed is not the central issue with respect to Ohta and its application under 35 U.S.C. §103(a) to the claimed invention. All elements of the claimed process must be taken into account and the Examiner, other than copying portions of the Applicant's claims, has not illustrated how such elements have been taught by Ohta within the context of obviousness. No reference has been made to Ohta's specification and drawing that shows or suggests the claimed invention as expressed by Claim 8.

Upon comparing the elements of the claimed invention to the elements of Ohta, Applicant submits that the pending claims teach gas/liquid phase reactions in general and nitroaromatic hydrogenation in particular using an apparatus and process which is entirely different from that of Ohta and those differences with respect to Claims 8-13 would not have been prima facie obvious under 35 U.S.C. §103(a).

Assuming for purposes of discussion that the claims relate to carrying out a process in an apparatus similar to that set forth in the drawings of Applicant's specification, it is readily apparent from such drawings that there are significant differences in the respective apparatus, and thus the process, by which Applicant carries out his process to that of Ohta. A quick review of the drawings in Applicant's specification and Applicant's Claim 8 paragraphs (a) (c) and (d) shows that Applicant employs agitation at the top the catalyst bed while Ohta employs agitation from the bottom of the reactor. Gas is introduced via the hollow

shaft employed in Applicant's agitation system while in Ohta gas is introduced at the bottom via an adjacent port, not taught a hollow, tubular agitation shaft which is in communication with the headspace of the reactor.

In Ohta, there is no side wall having a side wall perforation therein to allow for flow of a frothy mixture from a top area to a bottom area of the reactor and then upwardly through the catalyst bed (refer to paragraphs (a) and (f) of Claim 8). Applicant draws gas for the reaction from the headspace and not as a gas/liquid feed as does Ohta (paragraph (e)).

Applicant points out that because of the horizontal baffle (paragraph (a) and the side wall including side wall perforation (paragraphs (a) and (c) there is some restriction causing the liquid and gas to mix intimately and generate a froth. The froth then is forced outwardly from an upper portion of the reactor downwardly and then upwardly through the catalyst bed. Ohta does the opposite. Assuming it would be prima facie obvious to invert the Ohta apparatus, Ohta would not meet Applicant's claims because of the absence of those same differences. For example, there would be no side wall nor side wall perforation and there would be no way to introduce reactant gas to the agitator.

Summarizing, Applicant respectfully submits that Ohta does not provide sufficient disclosure or the motivation to develop a process of the type claimed by Applicant. Absent a motivation and direction in Ohta to carry out a gas/liquid reaction by the process claimed by Applicant, a prima facie case of obviousness has not been established under the standards of 35 U.S.C. §103(a).

Examiner' Rejection Based On Boger US Publication No. 2002/0081254

The Examiner alleges on page 7 of the Office Action that Boger teaches and again points out that it would have been obvious to hydrogenate nitroaromatic compounds in the apparatus of Boger. No other differences were referenced.

Applicant's Response

The Examiner has made no reference to any aspect in Boger' specification that discloses the elements of Applicant's claims. Boger's Fig 1 shows agitation at the bottom and no side wall or side wall perforation allowing for liquid and gas, as a frothy mixture, to be forced outwardly and upwardly through the catalyst bed. Fig 2 shows downward agitation with the catalyst bed being separated and agitation at the midpoint, not at the top. Figs 3, 4, and 5 show the use of spargers. Fig 8 shows a sparger and agitator combination and the use of side wall, but there is no side wall perforation and no horizontal baffle which is required in paragraphs (a) (b) and (c) of Claim 8. The claimed flow pattern is different from Boger. Thus, Applicant submits that a prima facie case of obviousness cannot be made under 35 U.S.C. §103(a).

Examiner' Rejection Based On Witt, et al US 5,779,995

The Examiner after reciting Applicant's claim language at page 8 refers to Witt, et al at page 9, stating that the difference between Witt, et al and Applicant's' claims was not one of anticipation but one of obviousness. The Examiner alleges that Witt, et al teaches the elements of Applicant's claims and established prima facie obviousness.

Applicant's Response

In rejecting Applicant's Claims 8-12 under 35 U.S.C. §103(a) the Examiner has resorted to the previous method of rejecting Claims 8-12 by reciting Applicant's claims, showing a drawing from the cited references and concluding prima facie obviousness without referring to the drawing or specification via column and line numbers and thereby pointing their relevance to the claim language. Applicant submits Fig 1 of Witt, et al is similar to that of Figs 8 and 9 of Boger wherein in Fig 1 of Witt, et al agitation is effected by means of an agitator and sparger placed below the bed and there is a separated reactor system as in Boger's Fig 9.

Gas is drawn from the headspace through a hollow tube terminating at the agitator. The area tangent to the agitator is open; there is no side wall and side wall perforation in Witt, et al, Applicant has claimed in paragraphs (a) and (c) of Claim 8. There is no horizontal baffle configured to provide substantially sealing engagement with the interior wall of the tank per paragraph (a). Absent these two elements alone, that should be sufficient to show that a prima facie case of obviousness has not been made by Witt, et al. There are other elements in the Claim 8 and dependant claims therefrom that have not been addressed but need not in view of the differences already discussed.

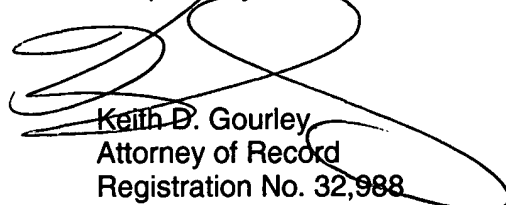
In summary, it is Applicant's position that the Examiner has cited a series of patents and articles showing different approaches to carrying out catalytic reactions between a reactant gas and reactant liquid, including the hydrogenation of nitroaromatic compounds. It is submitted these references show processes which are alternative to that claimed by

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Applicant, nothing more. Absent a showing of similar approach, e.g., of using a horizontal baffle to provide restriction between the liquid layer and head space, a side wall and side wall perforation to provide for enhanced mixing of gas with reactant liquid, and the other elements of Claim 8, a rejection under 35 U.S.C. §103(a) cannot be maintained. A rejection of dependant Claims 9-13 must fail when a rejection of the independent claim from which they depend cannot be made.

In view of the amendments and arguments herein it is requested the application be reconsidered and after due consideration the rejection be withdrawn and the application passed to issue.

Respectfully submitted,



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